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EXAMINER
GORTAYO, DANGELINO N

ART UNIT	PAPER NUMBER
2168	

NOTIFICATION DATE	DELIVERY MODE
02/03/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTOCommunications@hoffmanwarnick.com

	Application No.	Applicant(s)
Office Action Summary	10/827,566	BATRA ET AL.
	Examiner	Art Unit	
	DANGELINO N. GORTAYO	2168	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS,
WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>13 November 2008</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-20</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-20</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
        application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Response to Amendment

1.   In the amendment filed on 11/13/2008, claims 1, 8, and 16 have been amended.

The currently pending claims considered below are Claims 1-20.

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3.   Claims 1-6, 8-14, 16-18, and 20 are rejected under 35 U.S.C. 102(b) as being

anticipated by <u>Farmer</u> (WO 02/39486)

        As per claim 1, <u>Farmer</u> teaches "A system for dynamically implementing a chain

of Web services from a client on the World Wide Web to execute a workflow for

analyzing microarray data," (see Abstract and paragraph 0008)

        "comprising: a database for storing a list of available Web services, wherein each

listed Web service includes a description of a task performed by the Web service and

an input signature and an output signature of the Web service, wherein the Web service

comprises a computer program accessible over the World Wide Web;" (Figure 3,

paragraphs 0018, 0022, 0022, 0051, 0057, 0058, 0062, wherein a Service Broker

accepts requests and provides connections to services, and contains service names,

types, and attributes in Java class format, including type signatures)

"and a selecting system for forming the chain of Web services by selecting a

Web service from the list of available Web services for each of a plurality of tasks in the

workflow," (Figure 11, paragraphs 0040, 0053, 0060, 0061, 0062, 0063, wherein

services can be linked together and service attributes and classes are used for

interaction)

"wherein the workflow comprises a series of linked tasks and a specified input

and output format," (Figure 3, paragraphs 0040, 0042, 0043, 0045, 0046, 0053, 0062,

wherein services interact and identify with each other through java classes, and are

encapsulated to interact with each other, including formats defined by type signatures)

"and wherein the selecting examines a set of available Web services configured

to execute completing each task and identifies and selects at least one Web service

having matching input and output signatures ensuring that each Web service selected

to complete a task is compatible with adjacent Web services in the chain of Web

services" (Figure 3, Figure 11, paragraphs 0022, 0036, 0041, 0043, 0046, 0048, 0049,

0056, 0057, 0058, 0061, 0070, 0071, 0074-0079, wherein services are provided by

service providers, and a client can utilize dynamic discovery to identify services that can

recognize the data type to complete the service, to integrate heterogeneous data

components and services).

"and a signature matching system for identifying the set of available web services

configured to execute each task, wherein for each task the identifying comprises

identifying all Web services in the list of available Web services having at least one of

the matching input and output signatures for each task." (paragraphs 0018, 0021, 0041,

0042, 0043, 0044, 0045, 0046, 0048, 0051, 0058, 0059, 0060, 0061, wherein registered

services and events are utilized to address user queries by service identifiers, and

service types and input/output are identified to link service executions)

     As per claim 2, <u>Farmer</u> teaches "the workflow comprises a microarray analysis

workflow." (Figure 2, paragraphs 0049, 0086)

     As per claim 3, <u>Farmer</u> teaches "a workflow generator for creating the workflow."

(paragraphs 0049, 0050)

     As per claim 4, <u>Farmer</u> teaches "the list of available Web services resides

locally with the client." (paragraphs 0039, 0044)

     As per claim 5, <u>Farmer</u> teaches "a system for collecting and storing available

Web services data." (paragraphs 0018, 0022)

     As per claim 6, <u>Farmer</u> teaches "a system for inputting sequence data into the

workflow execution." (paragraph 0067)

     As per claim 8, <u>Farmer</u> teaches "A program product, stored on a recordable

medium for executing a workflow by dynamically implementing Web services from a

client on the World Wide Web for analyzing microarray data," (see Abstract and

paragraph 0008)

     "comprising: program code configured for storing a list of available Web services,

wherein each listed Web service includes a description of a task performed by the Web

service, and an input signature and an output signature of the Web service;" (Figure 3,

paragraphs 0018, 0022, 0022, 0051, 0057, 0058, 0062, wherein a Service Broker

accepts requests and provides connections to services, and contains service names,

types, and attributes in Java class format, including type signatures)

  "and program code configured for forming a chain of Web services by selecting a

Web service from the list of available Web services for each of a plurality of tasks in the

workflow," (Figure 11, paragraphs 0040, 0053, 0060, 0061, 0062, 0063, wherein

services can be linked together and service attributes and classes are used for

interaction)

  "wherein the workflow comprises a series of linked tasks and a specified input

and output format," (Figure 3, paragraphs 0040, 0042, 0043, 0045, 0046, 0053, 0062,

wherein services interact and identify with each other through java classes, and are

encapsulated to interact with each other, including formats defined by type signatures)

  "and wherein the selecting examines a set of available Web services configured

to execute completing each task and identifies and selects at least one Web service

having matching input and output signatures ensuring that each Web service selected

to complete a task is compatible with adjacent Web services in the chain of Web

services" (Figure 3, Figure 11, paragraphs 0022, 0036, 0041, 0043, 0046, 0048, 0049,

0056, 0057, 0058, 0061, 0070, 0071, 0074-0079, wherein services are provided by

service providers, and a client can utilize dynamic discovery to identify services that can

recognize the data type to complete the service, to integrate heterogeneous data

components and services).

"program code configured for identifying the set of available web services configured to execute each task, wherein for each task the identifying comprises identifying all Web services in the list of available Web services having at least one of the matching input and output signatures for each task." (paragraphs 0018, 0021, 0041, 0042, 0043, 0044, 0045, 0046, 0048, 0051, 0058, 0059, 0060, 0061, wherein registered services and events are utilized to address user queries by service identifiers, and service types and input/output are identified to link service executions)

As per claim 9, Farmer teaches "the workflow comprises a microarray analysis workflow." (Figure 2, paragraphs 0049, 0086)

As per claim 10, Farmer teaches "the workflow comprises a bioinformatics workflow." (paragraphs 0008)

As per claim 11, Farmer teaches "means for creating the workflow." (paragraphs 0049, 0050)

As per claim 12, Farmer teaches "the storage means resides locally with the client." (paragraphs 0039, 0044)

As per claim 13, Farmer teaches "means for collecting and storing available Web services data in said storage means." (paragraphs 0018, 0022)

As per claim 14, Farmer teaches "a system for inputting sequence data into the workflow execution." (paragraph 0067)

As per claim 16, Farmer teaches "A method for executing a bioinformatics workflow from a client on the World Wide Web," (see Abstract and paragraph 0008)

"comprising: providing a workflow having a plurality of linked tasks and a specified input and output format;" (Figure 3, paragraphs 0040, 0042, 0043, 0045, 0046, 0053, 0062, wherein services interact and identify with each other through java classes, and are encapsulated to interact with each other, including formats defined by type signatures)

"providing a list of known bioinformatics Web services, wherein each listed Web service includes a description of a task performed by the Web service, and an input signature and an output signature of the Web service, further wherein the Web service comprises a computer program accessible over the World Wide Web;" (Figure 3, paragraphs 0018, 0022, 0022, 0051, 0057, 0058, 0062, wherein a Service Broker accepts requests and provides connections to services, and contains service names, types, and attributes in Java class format, including type signatures)

"selecting a Web service from the list of known bioinformatics Web services for each task in the bioinformatics workflow to form a chain of Web services, wherein the selecting step examines a set of available Web services configured to execute each task and identifies and selects at least one Web service having matching input and output signatures ensuring that each Web service selected to complete a task is compatible with adjacent Web services in the chain of Web services" (Figure 3, Figure 11, paragraphs 0022, 0036, 0041, 0043, 0046, 0048, 0049, 0056, 0057, 0058, 0061, 0070, 0071, 0074-0079, wherein services are provided by service providers, and a client can utilize dynamic discovery to identify services that can recognize the data type to complete the service, to integrate heterogeneous data components and services).

"identifying the set of available web services configured to execute each task, wherein for each task the identifying comprises identifying all Web services in the list of available Web services having at least one of the matching input and output signatures for each task." (paragraphs 0018, 0021, 0041, 0042, 0043, 0044, 0045, 0046, 0048, 0051, 0058, 0059, 0060, 0061, wherein registered services and events are utilized to address user queries by service identifiers, and service types and input/output are identified to link service executions)

"and calling each selected Web service in the chain to execute the bioinformatics workflow." (Figure 11, paragraphs 0040, 0053, 0060, 0061, 0062, 0063, wherein services can be linked together and service attributes and classes are used for interaction)

As per claim 17, Farmer teaches "the bioinformatics workflow comprises a microarray analysis." (Figure 2, paragraphs 0049, 0086)

As per claim 18, Farmer teaches "the list of known bioinformatics Web services resides locally to the client." ()(paragraphs 0039, 0044)

As per claim 20, Farmer teaches "the step of calling each selected Web service includes the step of providing a set bioinformatics data to a first Web service in the chain in the specified input format." (paragraph 0067)

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5.   Claims 7, 15, and 19 rejected under 35 U.S.C. 103(a) as being unpatentable over

Farmer (WO 02/39486) in view of Yung et al. (US Patent 6,909,974 B2)

As per claim 7, Farmer is disclosed as per claim 1 above. Farmer does not

teach "the input signature comprises a FASTA XML format for a set of input sequences

and the output signature comprises an XML file format for providing spatial microarray

placement data."

Yung teaches "the input signature comprises a FASTA XML format for a set of

input sequences and the output signature comprises an XML file format for providing

spatial microarray placement data." (Figure 10, 12A, 12B, 13, column 12 line 20 –

column 13 line 2, column 19 line 60 – column 20 line 12, wherein XML format is used to

wrap information and provide communication between heterogeneous services in a

bioinformatics system, particularly XML input and output files).

It would have been obvious to one of ordinary skill in the art to combine Farmer's

method of allowing interoperation of heterogeneous bioinformatics software services

with Yung's ability to utilize XML formatted files in communicating between different

services linked in a workflow. This gives the user the ability to use XML when inputting

and outputting bioinformatics data in a workflow to provide the user of a bioinformatics

system a commonly used communication format, XML, and allows the user to define the

tags that identify attributes. The motivation for doing so would be to provide a

centralized biological information flow management system that requires less human

involvement and the possibility of error than previous systems (column 1 lines 44-63)

     As per claim 15, <u>Farmer</u> is disclosed as per claim 1 above. <u>Farmer</u> does not

teach "the input signature comprises a FASTA XML format for a set of input sequences

and the output signature comprises an XML file format for providing spatial microarray

placement data."

     <u>Yung</u> teaches "the input signature comprises a FASTA XML format for a set of

input sequences and the output signature comprises an XML file format for providing

spatial microarray placement data." (Figure 10, 12A, 12B, 13, column 12 line 20 –

column 13 line 2, column 19 line 60 – column 20 line 12, wherein XML format is used to

wrap information and provide communication between heterogeneous services in a

bioinformatics system, particularly XML input and output files).

     It would have been obvious to one of ordinary skill in the art to combine <u>Farmer</u>'s

method of allowing interoperation of heterogeneous bioinformatics software services

with <u>Yung</u>'s ability to utilize XML formatted files in communicating between different

services linked in a workflow. This gives the user the ability to use XML when inputting

and outputting bioinformatics data in a workflow to provide the user of a bioinformatics

system a commonly used communication format, XML, and allows the user to define the

tags that identify attributes. The motivation for doing so would be to provide a

centralized biological information flow management system that requires less human

involvement and the possibility of error than previous systems (column 1 lines 44-63)

As per claim 19, Farmer is disclosed as per claim 1 above. Farmer does not

teach "the input signature comprises a FASTA XML format for a set of input sequences

and the output signature comprises an XML file format for providing spatial microarray

placement data."

Yung teaches "the input signature comprises a FASTA XML format for a set of

input sequences and the output signature comprises an XML file format for providing

spatial microarray placement data." (Figure 10, 12A, 12B, 13, column 12 line 20 –

column 13 line 2, column 19 line 60 – column 20 line 12, wherein XML format is used to

wrap information and provide communication between heterogeneous services in a

bioinformatics system, particularly XML input and output files).

It would have been obvious to one of ordinary skill in the art to combine Farmer's

method of allowing interoperation of heterogeneous bioinformatics software services

with Yung's ability to utilize XML formatted files in communicating between different

services linked in a workflow. This gives the user the ability to use XML when inputting

and outputting bioinformatics data in a workflow to provide the user of a bioinformatics

system a commonly used communication format, XML, and allows the user to define the

tags that identify attributes. The motivation for doing so would be to provide a

centralized biological information flow management system that requires less human

involvement and the possibility of error than previous systems (column 1 lines 44-63).

Response to Arguments

6.   Applicant's arguments, see page 8, filed 11/13/2008, with respect to the 35 USC
112, second paragraph rejection of claims 1, 8, and 16 have been fully considered and
are persuasive. The 35 USC 112, second paragraph rejection of claims 1, 8, and 16
has been withdrawn.

7.   Applicant's arguments, see page 9, filed 11/13/2008, with respect to the 35 USC
101 rejection of claims 1-20 have been fully considered and are persuasive. The 35
USC 101 rejection of claims 1-20 has been withdrawn.

8.   Applicant's arguments, see page 9, filed 11/13/2008, with respect to the rejection
of claims 1-20 under 35 USC 102(b) have been fully considered but they are not
persuasive. Details are stated below.

        a.   Examiner is entitled to give claim limitations their broadest reasonable

        interpretation in light of the specification. See MPEP 2111 [R-I]

                Interpretation of Claims-Broadest Reasonable Interpretation

                During patent examination, the pending claims must be 'given the

        broadest reasonable interpretation consistent with the specification.' Applicant

        always has the opportunity to amend the claims during prosecution and broad

        interpretation by the examiner reduces the possibility that the claim, once issued,

will be interpreted more broadly than is justified. In re Prater, 162 USPQ 541,550-

51 (CCPA 1969).

b.   Applicant's argument is stated as Farmer does not teach "a signature

matching system for identifying the set of available web services configured to

execute each task, wherein for each task the identifying comprises identifying all

Web services in the list of available Web services having at least one of the

matching input and output signatures for each task."

        In regards to the argument, the Examiner respectfully disagrees. As

disclosed in paragraphs 0018 and 0021, Farmer discloses a Services Broker that

provides services based on service name, types, or attributes. As disclosed

above, the attributes of a service also disclose the input and output of the

service, and can then be utilized to link services together for particular types of

events and responds to them accordingly. The ability to identify available

services to execute a workflow of tasks is further disclosed in paragraphs 0041,

0042, 0043, 0044, 0045, 0046, 0048, 0051, 0058, 0059, 0060, 0061, wherein

registered services and events are utilized to address user queries by service

identifiers, and service types and input/output are identified to link service

executions. A registry of not only services, but also service names, types, and

attributes is utilized for executing particular data objects in a bioinformatics

system. Therefore, Farmer teaches a signature matching system for identifying

the set of available web services configured to execute each task, wherein for

each task the identifying comprises identifying all Web services in the list of

available Web services having at least one of the matching input and output

signatures for each task.

c.   Applicant's argument is stated as Farmer does not disclose identifying a

set of available web services and selecting a web service from the list of

available Web services for each of a plurality of tasks in the workflow.

In regards to this argument, Examiner respectfully disagrees. As stated in

the above 102(b) rejection and the previous argument (filed 9/24/2008), Farmer

discloses that services are provided by service providers (paragraph 0046) and a

client can utilize dynamic discovery to identify services that can recognize the

data type to complete the service (paragraphs 0048, 0049), for the integration of

heterogeneous data components and services in a chain of services. As stated in

paragraphs 0041, 0043, and 0044, Farmer teaches that a registry contains

service information such as service names, types, and attributes, as well as the

provider of specific services. As disclosed above and in the previous argument,

the mapping of data and attributes of services is utilized to pass data through a

linked series of services compatible with each other (paragraphs 0057, 0058,

0059 and specific example outlined in Figure 11 and paragraphs 0070, 0071,

0074-0079). The registry is utilized to listen for evens and register components

link to a particular service, so that future calls for a specific service can be

addressed utilizing the registry, as shown in the example presented in paragraph

0044. Paragraph 0071 of Farmer more specifically discloses how services are

registered and can then be invoked by utilizing a simple Java class that can be

called in the integrated system. Therefore, Farmer teaches identifying a set of

available web services and selecting a web service from the list of available Web

services for each of a plurality of tasks in the workflow.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to DANGELINO N. GORTAYO whose telephone number is

(571)272-7204. The examiner can normally be reached on M-F 7:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Tim T. Vo can be reached on (571)272-3642. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Dangelino N Gortayo/   /Tim T. Vo/
Examiner, Art Unit 2168   Supervisory Patent Examiner, Art
                                                   Unit 2168

Dangelino N. Gortayo   Tim T. Vo
Examiner   SPE